

1 1. A method comprising:
2 forming a base contact in a semiconductor
3 structure;
4 covering said semiconductor structure with a
5 layer;
6 forming an electrical connection through said
7 layer to said contact; and
8 forming a phase-change material over said layer,
9 said material electrically coupled to said contact.

1 2. The method of claim 1 wherein covering said
2 semiconductor structure with a layer includes covering said
3 structure with at least one insulating layer.

1 3. The method of claim 2 including forming a passage
2 through said insulating layer.

1 4. The method of claim 3 including forming the
2 electrical connection through said passage.

1 5. The method of claim 4 wherein forming an
2 electrical connection includes forming a cup-shaped
3 electrical connection.

1 6. The method of claim 5 including filling said cup-
2 shaped electrical connection with an insulator.

1 7. The method of claim 6 including forming a lower
2 electrode coupled to said cup-shaped connection.

1 8. The method of claim 7 including forming a cup-
2 shaped lower electrode.

1 9. The method of claim 8 including forming a
2 sidewall spacer in said cup-shaped lower electrode.

1 10. The method of claim 9 wherein forming a phase-
2 change material includes depositing a phase-change material
3 over said insulating layer and said spacer and electrically
4 contacting said lower electrode.

1 11. A memory comprising:
2 a semiconductor structure;
3 a base contact formed on said semiconductor
4 structure;
5 an insulating layer over said semiconductor
6 structure;
7 a passage formed through said insulating layer,
8 said passage including an electrical connection; and
9 a phase-change material electrically coupled to
10 said electrical connection.

1 12. The memory of claim 11 wherein said electrical
2 connection is cup-shaped.

1 13. The memory of claim 12 including a lower
2 electrode.

1 14. The memory of claim 13 including a sidewall
2 spacer on said lower electrode.

1 15. The memory of claim 14 wherein the phase-change
2 material is formed over said sidewall spacer and in contact
3 with said lower electrode.

1 16. The memory of claim 15 including an insulating
2 material within said cup-shaped electrical connection.

1 17. The memory of claim 16 wherein said lower
2 electrode is cup-shaped.

1 18. The memory of claim 17 wherein said lower
2 electrode is recessed below the upper surface of said
3 insulating layer.

1 19. The memory of claim 18 including an upper
2 electrode over said phase-change material.

1 20. A memory comprising:
2 a semiconductor structure;
3 a phase-change material spaced above said
4 semiconductor structure; and
5 a tubular connector electrically coupling said
6 phase-change material to said semiconductor structure.

1 21. The memory of claim 20 including an insulating
2 layer over said semiconductor structure.

1 22. The memory of claim 21 including a passage formed
2 through said insulating layer.

1 23. The memory of claim 22 wherein said passage is
2 lined with said tubular connector.

1 24. The memory of claim 20 including a lower
2 electrode electrically coupled to said phase-change
3 material and said connector.

1 25. The memory of claim 24 wherein said lower
2 electrode is tubular.

1 26. The memory of claim 20 wherein said connector is
2 cup-shaped.

1 27. The memory of claim 26 wherein said lower
2 electrode is cup-shaped.

1 28. The memory of claim 27 including a sidewall
2 spacer over said electrode and between said electrode and
3 said phase-change material.

1 29. The memory of claim 28 wherein said sidewall
2 spacer is positioned within said passage and wherein said
3 sidewall spacer is cylindrical.

1 30. The memory of claim 29 including an upper
2 electrode over said phase-change material.